

REMARKS

Status of the Claims

Claims 13, 14, and 17-34 were pending in this application. With this amendment, the applicants are amending claims 17 and 24-34. Claims 13, 14, and 19-22 have been canceled. Thus, claims 17, 18, 23-34 are the pending claims in this application.

Summary of the Office Action

In the Office Action Dated May 14, 2003, claims 13, 17-20, 23-27, and 31-34 were rejected under 35 U.S.C. § 102(a) and (e) as being anticipated by Denton (US 6,042,958). Claims 14 and 21-22 were rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Denton '958. Claims 28-30 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Denton '958.

Rejection Under 35 U.S.C. § 102(a) and (e)

Claims 13, 17-20, 23-27, and 31-34 stand rejected under 35 U.S.C. § 102(a) and (e) as being anticipated by Denton '958. Claims 13, 19, and 20 have been cancelled, rendering the rejection moot with respect to these claims. For the reasons set forth below, the applicants respectfully submit that claims 17, 18, 23-27 and 31-34 are not anticipated by Denton '958.

In response to this rejection, claim 17 has been amended to specify that the process steps must be in a specific order. Claim 17, as amended, specifies the following features in order: forming a porous substrate by a process comprising the steps of (a) dispersing fibres in water to form a slurry; (b) depositing the slurry formed in step (a) onto a mesh bed to form a fibre network; (c) drying and compacting the fibre network formed in step (b); and (d) applying before or after step (c), to the fibre network, a dispersion of a binder comprising both silica and a fluorinated polymer; and thereafter, impregnating the fibre matrix substrate with a polymeric material to produce a membrane. Thus, amended claim 17 recites the limitations that step (a) is done before step (b); that step (b) is done before step (c); step (d) may be done "before or after step (c)", and that the steps of section (i) are done before the steps of section (ii). With this amendment specifying a specific order, the applicants submit

that the claims are patentable because Denton '958 does not disclose the process as set forth in amended claim 17. Additionally, with respect to dependent claims 18, 23-27, and 31-34, the applicants submit that the claims are allowable for the same reasons set forth in connection with claim 17.

As noted above, claim 17 requires a step of "(d) applying before or after step (c), to the fibre network, a dispersion of a binder comprising both silica and a fluorinated polymer". The applicants submit that the order set forth in independent claim 17 is critical to the present invention and imparts, along with other claim features, patentability. For example, step (d) must occur after step (b) because the fibre network is nonexistent until it has been formed in step (b). Similarly, step (b) must occur after step (a) because the slurry cannot be deposited onto a mesh bed until it has been formed in step (a). The applicants appreciate the Examiner's acknowledgement that claim 17 specifies that the steps of section (i) are performed before the steps of section (ii).

As noted previously in the response dated March 5, 2003, Denton '958 does discloses a process for the manufacture of a composite membrane wherein fibres are deposited in water thereby forming a slurry which may contain PTFE coated fibres and materials such as particulate silica. See column 5, lines 20-45. However, the applicants submit that Denton '958 does not suggest the process disclosed in claim 17, as amended herewith. Denton '958 may disclose the addition of silica or polymeric materials to individual fibres or to a slurry of fibres; however, it does not disclose or suggest that silica or polymeric materials be applied to a fibre network that has been formed by deposition of a slurry onto a mesh bed as in the present invention. For instance, Denton '958 discloses that fibres are coated with PTFE "prior to forming a porous substrate." This pre-coating with polymeric materials clearly occurs before the fibres are dispersed in a slurry--before step (a) of the present invention. This step of pre-coating the fibres prior to the formation of a substrate is directly opposed to the process disclosed in the present invention wherein the fibres are coated with PTFE after a fibre network as been formed. In other words, the order in which silica and PTFE are added differs in Denton '958 from the present invention. Denton '958 specifically states "particulate matter may be added to the fibre containing slurry." See column 6, lines 32-34. Thus, Denton '958 does not disclose that the particles should be added after the slurry has been deposited onto a mesh bed to form a fibre network, as required in claim 17 of the present invention.

Further, the applicants assert that independent claim 17 is patentable for the following reason. Denton '958 does not disclose step (d) of independent claim 17. Independent claim 17 requires "applying before or after step (c), to the fibre network, a dispersion of a binder comprising both silica and a fluorinated polymer". Denton '958 does not disclose or suggest combining silica and a fluorinate polymer in a single dispersion and then applying such a combination to the fibre network in a single dispersion. Thus, independent claim 17 and dependent claims 18, 23-27 and 31-34 are patentable over the cited reference.

Additionally, the Examiner stated that with respect to claims 24, 31, and 32, the "limitations are not given patentable weight because the intermediate form of the silica powder, such as in an aqueous dispersion or colloidal aqueous solution, has no impact on the final product" and suggested the applicants include these limitations in a process claim in order to have patentable weight. The applicants have amended dependent claims 24, 31, and 32 in response to this rejection and respectfully request withdrawal of this rejection.

In view of the foregoing, the applicants assert that the amended independent claim 17 and dependent claims 18, 23-27 and 31-34 are distinguishable from the cited reference. Accordingly, the applicants respectfully request withdrawal of the rejection.

Rejection Under 35 U.S.C. §§ 102(b)/103(a)

Claims 14, 21, and 22 stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Denton '958. Claims 14, 21, and 22 have been cancelled, rendering this rejection moot. Accordingly, the applicants request withdrawal of this rejection.

Rejection Under 35 U.S.C. § 103(a)

Claims 28-30 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Denton '958. Claims 28-30 are ultimately dependent on claim 17, which is patentable for the reasons discussed above. Therefore, the applicants respectfully request withdrawal of the rejection.

CONCLUSION

The applicants submit that the pending claims are in condition for allowance. All grounds for objection or rejection have been overcome by the present amendment.

Additionally, the newly added claims have full support in the specification and no new matter has been added. For all of these reasons, the applicants respectfully submit that the rejections under 35 U.S.C. §§ 102 and 103 should be withdrawn and favorable action is earnestly solicited.

Respectfully submitted,



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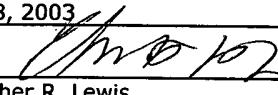
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